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10/754,933	01/09/2004	Norman Paul Jouppi	200312802-1	9240

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EXAMINER	
PAUL, DISLER	
ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
11/18/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/754,933	JOUPPI ET AL.	
	Examiner	Art Unit	
	DISLER PAUL	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16;18-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-28* is/are allowed.

6)☒ Claim(s) *1-16; 18-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendments have been considered but are moot in view of the new ground(s) of rejection.

1. Claims 18-19 are rejected under 35 U.S.C. 112, second paragraph, the claim wherein "`subtracting the difference by a maximum distance between the head of the person of the particular one of means for reproducing`" as being indefinite and ambiguous for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For prior art rejection claim 18 will be read as: computing a desired delay by determining a distance between the head of the person and the particular means for reproduction to determine a result and dividing the result by the speed of sound.

Allowable Subject Matter

1. Claims 25-28 are allowed.

Re claim 25, None of the prior art of record disclose of the specific wherein *the audio field is controlled based on the position of the head of the person, wherein audio signals applied to the plurality of speakers are multiplied by a ratio of a horizontal distance*

between the plurality of speakers and the head of the person to a horizontal distance between the plurality of speakers for reproducing and the center.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-9, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boulanger et al. (US 2003/0067536 A1) and Zacharov et al. (US 6,639,989 B1).

Re claim 1, Boulanger et al. disclose of a system for audio reproduction comprising: means for obtaining one or more audio signals that are representative of sounds occurring at a first location ("fig.1-2 wt (218-220); par[0026]"); means for communicating the audio signals from the first location to a second location of a person and means for determining a position of the head of the person in at least two dimensions at the second location by imaging the person and plural means for reproducing an audio field at the second location from the audio signals sounds emitted by each means for reproducing are controlled based on the position of the head of the person (fig.2; par[0041,0050,0035,0029,0027]sound from first location is adjusted based on position of head/including face at second location) and the

position of the head of the person, wherein the plural means for reproducing are arranged spaced apart and directed toward a center and wherein a particular one of the audio signals applied to a particular one of the means for reproducing is delayed based on the position of the person (fig.2; par [0041]/phase delay in regard to position).

But, Boulanger et al. fail to disclose of the specific wherein the audio signals for reproducing is time delayed based on the position of the person. But, Zacharov et al. disclose of a system wherein the similar concept of the audio signals for reproducing is time delayed based on the position of the person (fig.1-2;6; col.2 line 5-20) for purpose of having the sound arriving at the listening position simultaneously. Thus, taking the combined teaching of Boulanger et al and Zacharov et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Boulanger et al. with the wherein the audio signals for reproducing is time delayed based on the position of the person for purpose of having the sound arriving at the listening position simultaneously.

Re claim 2, the system acco]/rding to claim 1, wherein the audio field is reproduced in real time ("page 3[0011]/conferencing with sound/video in real-time").

Re claim 3, the system according to claim 1, wherein said means for determining repeatedly determines the position of the person and

wherein said means for reproducing is continuously controlled in response to changes in the position of the head of the person ("par [0031,0035,0041])").

Re claim 4, the system according to claim 1, wherein the position of the head of the person is determined in horizontal directions and wherein volume for reproduction by each means for reproducing is controlled based on a horizontal distance between the head of the person and the means for reproducing (*par [0041, fig.1]/each channel is volume adjusted relative/distance to the head positioning in three D incorporate horizontally*).

Re claim 5, the system according to claim 4, wherein each of the plural means for reproducing comprises a speaker ("fig.2/plural speakers").

Re claim 6, the system according to claim 4, further teach of the wherein each of the plural means for reproducing comprises at least a pair of vertically arranged speakers ("fig.2 wt (218,220)/speaker upper left and right").

Re claim 7, the system according to claim 1, wherein the position of the person is determined in three dimensions, including horizontal and vertical directions ("par[0027-0028]/camera to capture three-D dimension of object").

Re claim 8 has been analyzed and rejected with respect to claim 6.

Re claim 9, the system according to claim 8, However, Boulanger is silent in regard to the specific wherein a volume of reproduction by each of a pair of vertically arranged speakers is based on the position of the head of the person in the vertical direction. But, Boulanger did disclose of determining the Three dimensions of the head (including vertically/horizontally) directions and adjusting the volume based on such position and the each one of the channels audio field (fig.2; par [0041]), thus with the above disclosure it is inherent of the specific existence of such volume of reproduction by each of a pair of vertically arranged speakers is based on the position of the head of the person in the vertical direction.

Re claim 20, the system according to claim 1, further comprising means for displaying visual images to the user including a source of the sounds("fig.2 , par [0014]/means to display imagery to participatns").

2. Claims 14-16, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boulanger et al. (US 2003/0067536 A1) and Zacharov et al. (US 6,639,989 B1) and further in view of and Lau (US 6,553,272 B1).

Re claim 14, the system according to claim 1, wherein a particular one of the audio signals is multiplied by a factor related to the position to determine a desired signal level for the particular one of the audio signals (fig.1-3; par [0041]/sound signal to be adjusting/multiplied by a factor for the volume signal sound adjusting).

But, the combined teaching of Boulanger and Zacharov et al. as a whole, fail to disclose of the determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level. But, Lau disclose of a system wherein the similar concept of determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level (fig.2-6; col.6 line 25-65) for purpose of eliminating popping noise when changing the volume level signal. thus, taking the combined teaching of Boulanger and Zacharov

et al. and Lau as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Boulanger and Zacharov et al. as a whole, with the determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level for purpose of eliminating popping noise when changing the volume level signal.

Re claim 15, the system according to claim 14, wherein the sounds are digitally sampled at a sampling rate and the current signal level is incrementally adjusted in uniform increments, one adjustment for each of a predetermined number of samples (fig.4-5; col.6 line 5-65).

Re claim 16, the system according to claim 15, wherein the increment is related to a difference between the desired signal level and the current signal level (see claim 15/increment as from desired to current level).

Re claim 18, the system according to claim 1, wherein the particular one of the audio signals is time delayed.

But, the combined teaching of Boulanger and Zacharov et al. as a whole, fail to disclose of the computing a desired delay by determining a distance between the head of the person and the particular means for reproduction to determine

a result and dividing the result by the speed of sound. But, official notice is taken the concept of determining a delay computing a desired delay by determining a distance between a position of person and the particular means for reproduction to determine a result and dividing the result by the speed of sound is well known in the art. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Boulanger and Zacharov et al. as a whole, with the determining a delay computing a desired delay by determining a distance between a position of person and the particular means for reproduction to determine a result and dividing the result by the speed of sound for simultaneously reproducing the sound toward the user.

The combined teaching of Boulanger and Zacharov et al. as a whole, fail to disclose of wherein the desired delay is substantially different from a current delay, gradually adjusting the current delay toward the desired delay. But, Lau disclose of a system wherein the similar concept of when the desired delay is substantially different from a current delay, gradually adjusting the current delay toward the desired delay (fig.2-6; col.6 line 25-65) for purpose of eliminating popping noise when changing the volume level signal. thus, taking the combined teaching of Boulanger and Zacharov et al. and Lau as a whole, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Boulanger and Zacharov et al.

as a whole, with the desired delay is substantially different from a current delay, gradually adjusting the current delay toward the desired delay for purpose of eliminating popping noise when changing the volume level signal.

Re claim 19, the system according to claim 18, wherein the sounds are digitally sampled at a sampling rate and the current delay is gradually adjusted (see lau, col.6 line 25-65), but, the combined teaching of Boulanger and Zacharov et al. and Lau as a whole, fail to disclose of the adjustment by approximately between three and ten percent of the sampling rate. But, official notice is taken having the adjustment by approximately between three and ten percent of the sampling rate is simply the designer's preference. Thus, it would have been obvious for one of the ordinary skill in the art to have modified the combined teaching of Boulanger and Zacharov et al. and Lau as a whole, with the adjustment by approximately between three and ten percent of the sampling rate for purpose of eliminating popping noise when changing the volume level signal.

3. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boulanger et al. (US 2003/0067536 A1) and Lau (US 6,553,272 B1).

Re claim 21, Boulanger disclose of a method for audio reproduction comprising: obtaining one or more audio signals that are representative of sounds occurring at a first location; communicating the audio signals from the first location to a second location of a person; determining a position of a head of the person in at least two dimensions at the second location by imaging the person; and reproducing an audio field at the second location from the audio signals, wherein sounds emitted by each of plural means for reproducing are controlled based on the position of the head of the person, wherein a particular one of the audio signals is multiplied by a factor related to the position to determine a signal level for the particular one of the audio signals (fig.1-3; par [0041]/sound signal to be adjusting/multiplied by a factor for the volume signal sound adjuting).

But, Boulanger fail to disclose of the determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level. But, Lau disclose of a system wherein the similar concept of determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level (fig.2-6; col.6 line 25-65) for purpose of eliminating popping noise when changing the volume level

signal. thus, taking the combined teaching of Boulanger and Lau as a whole, it would have been obvious for one of the ordinary skill in the art to have modified Lau with the determining a desired signal level for the particular one of the audio signals and when the desired signal level is substantially different from a current signal level gradually adjusting the current signal level toward the desired signal level for purpose of eliminating popping noise when changing the volume level signal.

Re claim 22, the method according to claim 21, wherein volume of reproduction is controlled based on the position of the head of the person ("fig. 2-4; par [0041]").

Re claim 23, the method according to the claim 21, However, the combined Boulanger, is silent to the specific wherein the delay associated with volume of reproduction by each means for reproducing is controlled based on the positions of the head of the person. But, Boulanger did disclose of the specific wherein determining the image positioning of the head and accordingly adjusting the amplitude and phase of the audio field based on such position (fig.2-3; par [0041]), thus with the above disclosure it is inherent of the existence of such delay associated with volume of reproduction by each means for

reproducing is controlled based on the positions of the head of the person.

Re claim 24, the method according to claim 21, wherein the audio field is controlled based on the position of the person's head in three dimensions ("fig.3-4; par [0035-6,0025,0015,0041]").

Allowable Subject Matter

5. Claims 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information

for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614